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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/757,541

01/15/2004

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Q79456

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23373 7590 01/11/2008
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EXAMINER

PARK, JUNG H

ART UNIT

PAPER NUMBER

2619

MAIL DATE

DELIVERY MODE

01/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/757,541	JEON, JONG-GU	
	Examiner	Art Unit	
	Jung Park	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 is/are allowed.
- 6) ☒ Claim(s) 1, 7, 13, 16-18, 21, 24, 25 and 27 is/are rejected.
- 7) ☒ Claim(s) 2-6, 8-11, 15, 19, 20, 22, 23 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 7, 16, 21, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 7095732, "Watson") in view of Billhartz et al. (US 6954435, "Billhartz").

Regarding claim 1, Watson discloses a method for providing QoS in a wireless network communicating through a point-to-point network, the method comprising:

(a) at least one of intermediate nodes (105, 110, & 115) and a receiving node (106-108 & 111-114 fig.1), selecting at least one QoS management node (selecting one of nodes, see 105, 110, & 115 fig.1 and col.5, ln.40-50) among different nodes (among 105, 110, & 115 fig.1), the forwarding route reaching from a transmitting node to the receiving node via at least one intermediate node satisfying QoS requirements (as shown in fig.1; col.5, ln.40-50);

(b) the selected QoS management node (one of 105, 110, & 115 fig.1), managing QoS management information of the different nodes (a node acting as a gateway to other nodes may be assigned to be the QoS manager, see col.5, ln.40-50); and

(c) the QoS management node, changing the forwarding route on the basis of the QoS management information so that the changed forwarding route passes through a different node satisfying the QoS requirements (col.6, ln.1-11), if it is expected that at

least one intermediate node existing on the forwarding route will not satisfy the QoS requirements (if the QoS manager can not support the requested bandwidth, see col.6, ln.2-3).

Watson does not explicitly disclose the limitations of "different nodes within a predetermined range which are not included on a forwarding route." However, Billhartz discloses the QoS route request message, RREQQ, to find QoS supported different nodes within a predetermined range (nodes in RF range, see fig.8) which are not included on a forwarding route (node 5 is not included on a forwarding route of node 1 since it is not 1-hop node of node 1, see fig.1 and col.5, ln.5, ln.55-col.6, ln.3)."

Therefore it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to apply the QoS route request message to find QoS supported nodes taught by Billhartz into the QoS manager selecting method of Watson in order to provide more reliability to the mobile ad-hoc network by selecting one of QoS manager nodes among nodes with more than 1-hop.

Regarding claim 7, Watson discloses, "(a) include at least one information among delay, jitter, throughput, transmission power, remaining power, maximal values and minimal values for the respective information (bandwidth, see col.6, ln.1-3 and also see fig.4D), and set weights for the respective information (fig.4D and col.9, ln.24-36)."

Regarding claim 16, it is a claim corresponding to claims 13 & 1 and is therefore rejected for the similar reasons set forth in the rejection of the claims.

Regarding claim 21, it is a claim corresponding to claims 13 & 1 and is therefore rejected for the similar reasons set forth in the rejection of the claims.

Regarding claim 24, Watson discloses, "wherein the QoS route change unit requests a route change to the QoS management node if QoS information of the intermediate node exceeds a predetermined threshold value (530 fig.5)."

Regarding claim 25, it is a claim corresponding to claims 13 & 1 and is therefore rejected for the similar reasons set forth in the rejection of the claims.

3. Claims 13, 17, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson in view of Billhartz and further in view of Sholander et al. (US 7177295, "Sholander").

Regarding claim 13, Watson discloses, "a transmitting node of a wireless communication system communicating via a point-to-point network, the transmitting node comprising:

- a route setting unit (not shown in fig.2), which searches for a forwarding route (route steps in fig.3) which reaches from the transmitting node (node, see 101 fig.1) to a receiving node (one of 106-108 & 111-114 fig.1) via an intermediate node satisfying QoS requirements (one of intermediate nodes, see 105, 110, & 115 fig.1 and col.5, ln.40-50); and
- a data communication unit (not shown in fig.2), which forwards data to the receiving node (sending data, see 540 fig.5) through the forwarding route set by the route setting unit (note: unit for QoS constraint routing).

- wherein the route setting unit broadcasts a route request message including the QoS requirements to all nodes (QoS request, see col.10, ln.22-30), receives a route response message via at least one intermediate node on a route satisfying the QoS requirements from the receiving node (QoS response, see col.1, ln.58-62), and sets the forwarding route (col.2, ln.3-14)."

Watson does not explicitly disclose the limitations of "within a predetermined range from the transmitting node to the receiving node." However, Billhartz discloses these limitations as rejected in claim 1. Watson and Billhartz fail to suggest the limitations of "a shortest route." However, Sholander discloses the shortest route method (see col.3, ln.60-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to apply a shortest route while satisfying QoS requirement in order to keep network overhead at a minimum and provide QoS constrained service to users.

Regarding claims 17, 18, and 27, they are claims corresponding to the routing setting unit broadcasting a route request in claim 13 and are therefore rejected for the similar reasons set forth in the rejection of the claim 13.

Allowable Subject Matter

4. Claim 12 is allowed.
5. Claims 2-6, 8-11, 15, 19, 20, 22, 23, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 11/08/2007 have been fully considered but they are not persuasive.

At page 13, with respect to claim 13, applicant argues that the Examiner acknowledges that Watson does not teach "a route setting unit or a data communications unit" as claimed.

In reply, the Examiner has not acknowledged that Watson does not teach "a route setting unit or a data communications unit." The Examiner said that the unit is not shown in the Figures, but it is inherent to have such device for the functions as rejected.

Further, applicant argues that Watson fails to disclose, "a router setting unit, which searches for a forwarding route which reaches from the transmitting node to a receiving node".

In reply, Watson explicitly discloses the method of searching for a forwarding route which reaches from the transmitting node 101 Fig.1 to one of receiving nodes 106-108 & 111-114 Fig.1 via an intermediate node satisfying QoS requirements as shown in 105, 110, & 115 Fig.1 and described in col.5, ln.40-65. That is, the determining step of finding QoS link between the nodes is equivalent to "searching a forwarding route satisfying QoS requirements. Therefore, the examiner respectfully disagrees.

At page 14, with respect to claim 1, applicant argues that Watson fails to disclose, "the QoS management node, changing the forwarding route on the basis of the QoS management information so that the changed forwarding route passes through a different node satisfying the QoS requirements, if it is expected that at least one

intermediate node existing on the forwarding route will not satisfy the QoS requirements."

In reply, the claim limitations of "if it is expected that at least one intermediate node existing on the forwarding route will not satisfy the QoS requirements" read on "if the QoS manager can not support the requested bandwidth" as described in col.6, ln.2-3. Also, the limitation of "changing the forwarding route on the basis of the QoS management information so that the changed forwarding route passes through a different node satisfying the QoS requirements" read on "if the QoS manager cannot support the request, QoS manager sends a deny message to the requesting node" as described in col.6, ln.1-11. That is, if the QoS requirement is not satisfied, the QoS manager node sends a deny message for the sending node to find another forwarding route satisfying the required QoS requirement. Therefore, the examiner respectively disagrees.

At page 15, with respect to claim 1, applicant argues that Watson fails to disclose, "the selected QoS management node, managing QoS management information of the different nodes which are not included on the forwarding route".

In reply, Billhartz discloses the QoS route request message, RREQQ, to find QoS supported different nodes within a predetermined range as shown in Fig.8 and the nodes are not included on a forwarding route. For example, node 5 is not included on a forwarding route of node 1 since it is not 1-hop node of node 1 as shown in Fig.1 and described in col.5, ln.5, ln.55-col.6, ln.3. Therefore, the examiner respectively disagrees.

At page 15, applicant argues that the Examiner acknowledges that Watson fails to disclose, "selecting at least one QoS management node among different nodes within a predetermined range which are not included on a forwarding route".

In reply, the Examiner said that Watson fails to disclose, "different nodes within a predetermined range which are not included on a forwarding route". Watson discloses a management node and Billhartz discloses the deficiencies of Watson, which is "different nodes within a predetermined range which are not included on a forwarding route". Therefore, the examiner respectively disagrees.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung Park whose telephone number is 571-272-8565. The examiner can normally be reached on Mon-Fri during 6:15-3:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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